# Batch-Processing in 1965:

### An IBM 1401 Computer installed at The Travelers

The 1401 was the largest-selling transistorized computer. Its low price made it one of the machines which stimulated the tremendous rise in the business use of computers during the 1960's.

The exhibit is composed of three sections: the computer room, containing an IBM 1401 system; a card punch department, with an operating card punching machine which visitors can use; and a programmers office strewn with vintage programming paraphernalia.

The 1401 was designed in the mid-1950's to consolidate all of the various functions of IBM's electric punched card accounting machines; such as calculation, interpretation, collation and sorting of data. It operated on alphanumeric characters (letters and numbers) and used a variable word length. A unique feature of the 1401 was its add-to-storage feature which sped up calculation rates by eliminating the time taken for reading information from memory. The 1401 was basically intended as a card-based system, however, it was also able to use magnetic secondary memory in the form of either disc or tape.

IBM announced the 1401 in 1957 and delivered the first unit in 1958. Over 12,000 were ultimately installed. The success of the 1401 led to a small line of computers: the 1410, the 1440 and the 1460. The 1401 was the second-to-the-smallest of IBM's computers at the time. The scientifically-oriented 1620 was slightly smaller.

The principle use of the 1401 by Travelers was the generation of reports for management from information on policies issued. Information relating to policies, such as the name and address of the issuee, coverage, claims filed, etc. was stored on 80 column punched cards. Reports would be generated from these records according to a program directing which information was to be used and how, and how the result was to be presented. The speed and versatility of the 1401 permitted the condensation and manipulation of vast amounts of information into useable forms. This provided management with information about the trends in policies and claims allowing more informed decision-making.

The 1401 was a batch processing machine. Programs and data were fed to the computer one at a time exclusively by an operator. The programmer was isolated from the machine. This made the process of programming very difficult since the programmer rarely got his hands on the machine. Instead, he would encode the program he was writing, submit it to be punched from the code sheets onto 80 column cards, then have the cards delivered to the computer room with a batch of test data. The program would be run in between jobs. If it had a problem the operator would print out the contents of the memory and have them delivered back to the programmer, who would try to find his mistake and then start all over again. If the programmer was good friends with the operator, he might be able to persuade him to let him de-bug his program on the machine late at night or some other time when the machine was not busy. Programmers "drove the operators crazy" and operators "drove the programmers crazy." A film in the "See It Then Theatre" entitled "Ellis D. Kruptechev and His Marvellous Timesharing Machine" illustrates batch processing and the change to timesharing.



*A visitor punching a card in the 1401 computer exhibit area.*



*The IBM 1401 computer room recreated as it would have been in 1964 at an installation in The Travelers Companies. Francis Hjarne and Thomas Ottman of The Travelers provided the period ephemeral material, just as 1964 World's Fair posters and wall calendars to appropriately outfit the room. One of the only criticisms is that we don't have any period crumbled up candy bar wrappers on the floor—if anyone knows the whereabouts please send them to us and we'll add to the decor.*